



AURALIZE: Innovative Course in Room Acoustics and Auralization for Sound Professionals

1. Course Overview & Administrative Materials

- **Course Guide / Curriculum Summary (PDF)**
- **Project Overview / Erasmus+ Description**

The AURALIZE project provides hands-on experience, which is the best and most direct way to learn the theory of acoustics and use it in creative sonic thinking and practice. Attendees also learn to use and understand novel and specialist equipment such as the 64-microphone array Eigenmike64 and other spatial microphones. Attendees learn and understand the creation of source-and-listener positions in spatial audio and how to scientifically document the positions of the microphones and loudspeakers. They learn safety measurements and various practical aspects, such as communicating during work and protecting their ears.

- **Schedule and Timeline**
→ Key dates, locations, lecturers, and activities.
- **Contact and Partner Information**
Consorzio Futuro in Ricerca - CFR:

Prof. Ing. Lamberto Tronchin - UNIBO Profile | fistecamb.com

Dr. Cobi van Tonder - Acoustic Atlas | UNIBO Profile

University of Zagreb Faculty of Electrical Engineering and Computing (UNIZG-FER):

Prof. Kristian Jambrošić - FER Profile

Prof. Marko Horvat - FER Profile

2. Lecture Handouts and Reading Materials

Each lecture has a video viewable on Youtube, downloadable slides and some lectures also contain additional downloadable reference material. Consult the website for all related links.



- **A1: Historical Overview of Acoustics**
 - Lecture slides or PDF notes
 - YouTube link and transcript
- **A2: Fundamentals of Room Acoustics**
 - Equations and diagrams for reverberation, absorption, and diffusion
- **A3: Equipment and Methods of Recording**
 - Equipment list (Eigenmike64, microphones, recorders)
 - Step-by-step setup \
 - Impulse response measurement guide (exponential sine sweep method)
- **A4: Virtual Acoustics Production Workflow**
 - Ambisonics, VBAP, binaural workflows
- **A5: Multi-disciplinary Uses of Virtual Acoustics**
 - Case studies (Hagia Sophia, Chavín de Huántar, Chauvet Cave)

3. Practical and Creative Lab Resources

- Mic array layout, source/listener placement, and theater floor plans.
- Audio impulse responses
- Deconvolved IRs (B-format files, Ambix format)
- Analysis
- **Software Tutorials (lectures 3 and 5).**
 - Step-by-step Reaper workflow for convolution reverb and ambisonic decoding.
 - Video tutorials
 - Academic Conference papers

5. Dissemination & Documentation Materials

A1 – Historical Overview of Acoustics

Lecture slides and handout (Lecture_1_Handout.pdf)

A2 – Fundamentals of Room Acoustics

Lecture handout (Lecture_2_Handout.pdf)

A3 – Equipment and Methods of Recording

Lecture and Creative Lab notes (Lecture_3_Handout.pdf)



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A4 – Virtual Acoustics Production Workflow

Lecture notes (Lecture_4_Handout.pdf)

A5 – Multi-disciplinary Uses of Virtual Acoustics

Lecture and Creative Lab guide (Lecture_5_Handout.pdf)

Creative Lab 1

Equipment setup and measurement guide (CreativeLab1.pdf)

Creative Lab 2

Auralization workflow guide (CreativeLab2.pdf)

Additional Resources

Curriculum Summary (Curriculum.pdf)

Course Materials Overview (Course_Materials.pdf)